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China Report

AGRICULTURE

No. 186

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CONTENTS

PEOPLE'S REPUBLIC OF CHINA

I. GENERAL INFORMATION

National

Peasants Eagerly Acquiring Agrotechnology
(XINHUA, 18 Jan 82) 1

Northern PRC Speeds Afforestation Effort
(XINHUA, 14 Jan 82) 2

Headway Made in Research Into New Planting Methods
(Zhang Kai; RENMIN RIBAO, 29 Nov 81) 4

Briefs
Farm Product Purchase Orders Overfulfilled 8
China Builds Phytotron 8
Uses of Nuclear Techniques 8

Anhui

Briefs
Chuxian Prefecture Agricultural Production 9
Luan Prefecture Grain Output 9

Fujian

Tobacco Output Up in Fujian
(Zeng Hongqui, et al.; FUJIAN RIBAO, 13 Oct 81) 10

Hunan

Briefs
Shangqiu Prefecture grain output 11
Agricultural Production 11

Jiangsu

Briefs
Yangzhou county harvest 12

Shaanxi

Application of Farm Hiring Work Lauded
(SHAANXI RIBAO, 20 Nov 81) 13

Increase in Noncollective Wheat Growing an Temporary Measure
Discussed
(SHAANXI RIBAO, 22 Nov 81) 16

Shandong

Increased Cotton and Grain Yields Credited to Changed Crop
Patterns
(SHANDONG RIBAO, 11 Nov 81) 17

Briefs
Hebei Prefecture Cotton Output 19

Shanxi

Briefs
All-Weather Wheat Unloading 20

Sichuan

Province Overfulfills Grain Purchase Quotas Despite Local
Shortages
(SICHUAN RIBAO, 26 Nov 81) 21

Tianjin

Bumper Oil-Bearing Crop Harvests Reported
(TIANJIN RIBAO, 27 Nov 81) 23

Yunnan

Rosy Rural Financial Figures Revealed
(YUNNAN RIBAO, 14 Nov 81) 24

TAIWAN

Briefs

Five-Year Agricultural Investment [illegible]
Block Aid to Indonesia [illegible]

ABSTRACTS

AGRICULTURE

[illegible] ¿Alternativa Agricultural Básica? No 4, Dec 81 ..... [illegible]

BIOTECHNOLOGY

Kuncheng Xuebao ¿Acta Biotecnológica Sinica? No 4, Nov 81 44

CHEMISTRY

Yingyong Xuebao ¿Acta Química Sinica? No 4, Dec 81 46

METEOROLOGY

Qixiang Xuebao ¿Acta Meteorológica Sinica? No 4, Nov 81 47

PHYSICS

Yuanzi Xuebao ¿Acta Física Sinica? No 4, Nov 81 46

I. GENERAL INFORMATION

PEASANTS EAGERLY ACQUIRING AGROTECHNOLOGY

OW180714 Beijing XINHUA in English 0700 GMT 18 Jan 82

[Text] Beijing, 18 January (XINHUA)--Peasants in China are showing a thirst for scientific knowledge that is unprecedented in scale, according to Liu Shushou, vice-president of the China Association for Science and Technology.

Scientists and technicians attending a recent meeting on contracting for use of agrotechnology and new techniques in sideline production sponsored by the China Association for Science and Technology were urged to give technical courses in the countryside and train agrotechnicians. It was proposed that scientists write more popular agricultural science books and artists do picture albums, charts and teaching materials to meet the peasants demand for more learning materials.

With new systems of responsibility in production, the peasants across the country are eager to increase yields and income by scientific farming. Many of them now follow radio programs on popular agricultural science.

Thousands of commune level associations, with peasants, agrotechnicians and local specialists as members, now act as agrotechnical consultants, and contract for use of agrotechnology.

There are more than 1,000 such popular science associations in Sichuan Province, China's most populous province, [sentence as received] Anhui Province has 210 such commune associations, and Deputy Provincial Governor Yang Jike, an agronomist, belongs to one. All 136 rural communes in Jilin Province's Siping Prefecture have such an association.

In Hunan Province, China's major rice producer, 260,000 peasants and cadres are enrolled in agrotechnical training courses, which last from one week to three months. Courses, given in the evening or in slack seasons, are taught by agrotechnicians, model peasants or retired school teachers. Subjects cover crop cultivation, soil analysis, fertilizer application, straw and bamboo weaving, rabbit and fish raising, mushroom and pearl culture.

CSO: 4020/78

NORTHERN PRC SPEEDS AFFORESTATION EFFORT

OW141638 Beijing XINHUA in English 1209 GMT 14 Jan 82

[Text] Beijing, 14 January (XINHUA)--Afforestation has been accelerated in Shanxi, Shaanxi and Gansu Provinces and the Inner Mongolia autonomous region by combining efforts of state, collectives and individuals.

Despite a spring drought, Shanxi Province afforested 166,000 hectares of land last year, 4 percent more than the annual quota, according to the Provincial Forestry Bureau. At the same time, the province closed 26,600 hillside hectares to facilitate afforestation and prepared 34,300 hectares of land for tree planting. Peasants in plain areas planted in the past 2 years 9,300 hectares of fast-growing trees, with poplar as the main kind, to speed up afforestation.

Shaanxi Province planted 140,000 hectares of trees and cultivated 20,000 hectares of nurseries during spring and autumn last year, according to the PEOPLE'S DAILY. The afforestation area was 41 percent more than the annual quota and the nursery area met the target.

The province called three meetings last year to discuss afforestation, and assigned mountain slopes for private tree planting, implemented the responsibility system in afforestation and used planes in sowing, the paper reported.

Individual peasants in Gansu Province planted 13,400 hectares of trees last year, accounting for 20 percent of the total, reported the PEOPLE'S DAILY. In addition, they planted 26 million trees as windbreaks around houses and farmland and along roads and ditches.

Afforestation in the province gained momentum by the implementation of the policy that "trees belong to those who plant." Subsidies were given to those who participated in tree planting, the paper said.

Afforestation in Inner Mongolia covered 300,000 hectares of land in 1981, according to the region's people's government. Most of the trees were planted by communes and their subdivisions. The regional government urged localities to assign more wasteland to peasants and herdsmen for tree planting and to help them with saplings and techniques.

[redacted] the Petitioner Manager, which is located between the Rio and Rio Grande, placed a [redacted] and [redacted] with [redacted] of persons in the past [redacted] years. This has checked the two streams from [redacted], the [redacted] government said.

In [redacted], the Manager's [redacted] and [redacted] for compliance with the [redacted] and [redacted] years due [redacted] "[redacted]." The [redacted] [redacted] of [redacted] [redacted] [redacted] years.

[redacted] 4/30/78

BREAKAY MADE IN RESEARCH INTO NEW PLANTING METHODS

Beijing RENMIN RIBAO in Chinese 29 Nov 81 p 1

[Article by staff reporter Zhang Kai [7559 1956]: "Searching for Scientific Method of Reclamation--the Study of the Planting Method of Less Tilling and Ditching Shows Preliminary Results in Ningxia"]

[Text] The northwestern part of the Ningxia Hui Autonomous Region is between the major irrigation and the Baotou railway's Yinchuan section; it consists of a sedimentary belt which is narrow in the north and south; high in the west and low in the east. Here, the winds are strong and there is a lot of sand, rainfall is scarce, the soil is sandy light chestnut and planosol, the organic content is very low, and natural vegetation is sparse. But there are few gullies, the topography is relatively flat, there is good underground runoff, and the region has favorable conditions for the development of agriculture, forestry and livestock production.

Since the liberation, agricultural reclamation workers have established seven or eight state-run agricultural and livestock farms, one after the other, to develop this virgin land. During the past 30 years, over 100,000 mu have been reclaimed, but there is still more than 1 million mu of wasteland suitable for reclamation which awaits development. If 10,000 mu are reclaimed each year, over 100 years would be needed to reclaim the land completely. This rate obviously is too slow.

However, the rate of reclamation is limited by various conditions. One is high cost. The cost per mu for machinery, fuel and manual labor is over 200 yuan. The second is that punishment by nature will occur if reclamation is not done well. During reclamation, the natural vegetation is destroyed and immature soil is upturned. During the first 3 years, seedlings will not grow well, and even grass will not grow. The soil needs 2 to 3 years to mature before it can be used for planting crops. During this period, with frequent strong winds, the soil will become sandy. Therefore, even if the state's financial strength and materials permitted, not too much of the land could be reclaimed each year.

Scientific researchers in agricultural reclamation have long been thinking and searching: How can we realize the best results in reclamation and planting with the greatest speed and the least cost in this arid desert land? They studied the experiences at home and abroad, carried out scientific research and daring experiments, and created the planting method of less tilling and ditching.

the name of the planting method of tree felling and ditching cultivation or tree felling method hereafter already gives its main characteristic. It means not to uproot the land, not to level the fields, but to use only one tillage combine and complete the series of operations of trimming the mill, ditching, application of fertilizer, mixing and covering all at once on untilled land or immature wasteland. About the time of germination, depending on the situation, we can investigate the seedlings several times lightly and then wait for the harvest. This method reduces the labor in the procedures of the traditional planting method (tilling, harrowing, raking, applying fertilizers and mixing, thinning the seedlings and weeding, sidedressing and topdressing, intertilling and banking the soil in only time to five procedures). This can reduce the cost greatly, improve labor productivity, and economic gain can be reaped within the year.

This summer, the advantage of the tree felling method, compared to Vinata (VT 1997), had us on a visit to several experimental fields.

At an experimental field of the tree felling method near the Ntungata Agricultural Information Research Institute, we saw only an array of parallel ditches about 25 centimeters deep and 30 centimeters wide on the surface of the field. On the two sides of the ditches were two strips for crops. Two rows of corn with thick stems, broad leaves and deep green color were growing on these strips; most of the plants had more than two large, long ears of corn. The complete participating in this research and experiment also explained that the ditching method involved changing from irrigation by flooding with a large amount of water to ditch irrigation with a small amount of water. This not only conserves the use of water, but it also can prevent the soil from becoming hardpan and prevent secondary salinization and alkalization. By planting corn on the two sides of the ditches when the seedlings are small, the earth ridges can block the wind, and later the earth ridges facilitate the root systems coming in contact with more water in time. Three layers of base manure are applied underneath the strips of crops so that the fertilizer can develop its fertilizing effect in stages as the root system of the crop develops. Of special interest is that between the ditches is left a band of natural grazing grass about 1 meter wide. Very clearly, widening the distance between rows of corn and shortening the distance between plants is for aeration and full utilization of sunlight. The grass bands protect the vegetation, prevent the soil from weathering and becoming sandy, and facilitate the use of alternate cultivation and fallow periods. The researchers said that by planting in this way, the grazing grass can be cut and gathered before the corn is harvested. After the corn is harvested, the land can be used directly for grazing, or the grazing grass can be turned under during cultivation of farming and grazing by livestock in the second year to increase the humus under the strips of land grain crops.

Next to the experimental field of corn planted by the tree felling method is an experimental field of corn planted by the traditional planting method. The soil texture and the variety of corn planted are all the same as those in the aspect mental field using the tree felling method, only the planting method is different. This field underwent 13 to 15 farming operations, and an additional amount of over 30 tin of cow fertilizer and 25 tin of urea was applied per ha. The corn in this experimental field was relatively prosperous but because the application of

BRIEFS

FARM PRODUCT PURCHASE ORDERS OVERFULFILLED--Beijing, 17 January (XINHUA)--China purchased 23,540 million yuan worth of farm and side-line products in 1981, exceeding the annual target by 7 percent. This was an increase of 7 percent over 1980, according to the China FINANCE AND TRADE JOURNAL. Increases were chalked up in purchases of staples and side-line products, the journal said. Compared with 1980, cotton purchases were up 8.4 percent to 2.62 million tons, flue-cured tobacco was up 8% percent to 1.16 million tons, bast fiber crops were up 11 percent to 500,000 tons, tea was up 8.2 percent to 270,000 tons, wool was up 1.1 percent to 150,000 tons, sheep skins were up 26.2 percent to 16 million pieces and raw lacquer was up 12.5 percent to 2,700 tons. However, the journal said, decreases were registered in purchases of some products, including cattlehides which was down 19.1 percent to only 1.18 million pieces. Twenty-two provinces, municipalities and autonomous regions overfulfilled their annual purchase quotas, the journal said. [Text] [OW171205 Beijing XINHUA in English 1200 GMT 17 Jan 82]

CHINA BUILDS PHYTOTRON--Shanghai, 17 Jan (XINHUA)--China's first phytotron, a laboratory in which climatic conditions can be provided for the study of plants in a controlled environment, has been built in Shanghai, according to a spokesman for the sixth ministry of machine building. This marks a new level of modern research in agriculture. The system can also be used in forestry, aquatic product, meteorological and medical research. Jointly designed by the sixth ministry of Machine Building's Research Institute, the Institute of genetics under the Chinese Academy of Sciences and the Shanxi Academy of Agricultural Sciences. The phytotron was manufactured by an electronic equipment factory in Shanghai in 11 months. The phytotron was approved by a panel of specialists for serial production earlier this month. [Text] [Beijing XINHUA in English 1204 GMT 17 Jan 82 OW]

USES OF NUCLEAR TECHNOLOGIES--Beijing, 19 Jan (XINHUA)--Nuclear technologies, including isotope and irradiation, have been used in agriculture, industry, medicine and scientific researches in China, according to the GUANGMING DAILY today. One hundred and fifty new strains have been bred by radiation throughout the country, the paper said. Areas sown to new strains of cereals, oil-bearing crops, cotton, bast fiber crops, fruits and vegetables cover 6.7 million hectares. The increase in grain output alone amounts to 2.5 million tons a year. The well-known cotton strain, the Lumian No 1, helped Shandong Province reap good harvests in 1980 and 1981. The technologies are also used in food storage, insect sterilization and researches relating to nutrient supersession of plants and animals, soil fertilizers and poisonous remnants of pesticides, the paper added. [Excerpt] [Beijing XINHUA in English 1245 GMT 19 Jan 82 OW]

CSO: 4020/78

BRIEFS

CHUXIAN PREFECTURE AGRICULTURAL PRODUCTION--Beijing, 12 Jan (XINHUA)--Chuxian Prefecture in Anhui harvested 1.8 billion jin of grain and 260 million jin of oil bearing crops in 1981, topping the previous year by 18 and 11 percent respectively. As of mid-December 1981, the prefecture had already procured one billion jin of grain. [OW130155 Beijing XINHUA Domestic Service in Chinese 0243 GMT 12 Jan 82]

LUAN PREFECTURE GRAIN OUTPUT--Beijing, 12 Jan (XINHUA)--The total grain output of Luan Prefecture, Anhui, reached 5.17 billion jin in 1981, representing a quarter increase over the previous year. [OW130155 Beijing XINHUA Domestic Service in Chinese 0243 GMT 12 Jan 82]

CSO: 4007/162

TOBACCO OUTPUT UP IN FUJIAN

Fuzhou FUJIAN RIBAO in Chinese 11 Oct 81 p 1

[Article by Peng Dongqui [3708 2767 3239], Qiu Daoxing [6726 7120 2502], and Ye Yuwei [0673 2768 3634]: "Fujian Province Breaks All-Time Record in Quantity and Quality of Flue-Cured Tobacco Output; Output Totals 190,000 Dan of Which 78 Percent Is Medium-Grade Tobacco"]

[Text] Fujian Province's output of flue-cured tobacco this year broke all-time records, output totaling 190,000 dan, a 32 percent increase over last year's bumper harvest. As of mid-September, procurement of more than 117,700 dan of tobacco leaf had been done in the province, a 33 percent increase over the same period last year. Superior and medium quality tobacco was 78 percent of the total, a 4.4 percent increase over last year's all-time high.

Fujian Province holds a dominant position in development of flue-cured tobacco. However, for a long period of time under the influence of leftist ideology, the broad masses of tobacco farmers were able to use only winter fallow fields for the growing of winter tobacco, growing spring tobacco on a small amount of private plots and wastelands. Since the winter tobacco growing season is short and the climate cold in both winter and spring, growing of flue-cured tobacco was desultory, and though the growing area was large, neither quantity nor quality of output was high. This year all echelons of leadership in tobacco growing areas diligently readjusted the internal structure of farming, took firmly in hand the implementation of systems of responsibility for production, consistently carried into effect a policy linking tobacco to fertilizer and tobacco to grain, thereby greatly arousing the enthusiasm for production of tobacco farmers, the province's winter and spring tobacco growing area consequently amounting to more than 260,000 mu. In order to increase tobacco yields per unit of area, farming and supply and marketing units closely coordinated the operation of training classes in scientific tobacco farming and in flue-curing techniques to help tobacco farmers grow tobacco well. Yongding County, one of the superior spring tobacco growing bases in the country, readjusted its farm crop patterns this year, appropriately expanding the spring tobacco growing area. All levels of leadership placed growth of flue-cured tobacco production in a major position to promote a take-off in development of flue-cured tobacco production. This year the county grew 81,000 mu of flue-cured tobacco for an output totaling more than 120,000 dan, more than 90,000 dan of which the state has already bought up for a 66 percent increase over the same period last year. In Pinghe County, which grows winter tobacco for the most part, this year more than 42,700 mu of flue-cured tobacco was planted, an expansion over last year by more than 13,000 mu. More than 22,000 dan has already been bought by the state, a 52.9 percent increase over the same period last year. Yunxiao County, which produces mostly winter tobacco, grew 30,000 mu of flue-cured tobacco, a 6,100 mu expansion over last year. Tobacco purchases there have broken the 10,000 dan mark and have surpassed the all-time record.

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CSO: 4005/141

BRIEFS

SHANGQIU PREFECTURE GRAIN OUTPUT--Beijing, 12 Jan (XINHUA)--Henan's Shangqiu Prefecture harvested 1.5 billion jin of grain from its 7 million mu of farmland last year, topping the previous year by nearly 20 percent and with both per-mu and total yield hitting a record high. [Beijing XINHUA Domestic Service in Chinese 0243 GMT 12 Jan 82]

AGRICULTURAL PRODUCTION--In Henan Province, Shangqiu Prefecture's total grain output in 1981 reached 1.5 billion jin; Hebi Prefecture's total cotton yield in 1981 is expected to amount to 2.4 million dan. [OW190951 Beijing XINHUA Domestic Service in Chinese 0243 GMT 12 Jan 82]

CSO: 4007/163

BRIEFS

TONGSHAN COUNTY HARVEST--Jiangsu's Tongshan County reaped bumper harvests during the last 4 years. In 1981, it produced 1.48 billion jin of grain, 117 million jin from 1980. Its cotton output was the highest in history. Its oil crops rose by 10 percent. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 11 Jan 82]

CSO: 4007/168

APPLICATION OF FARM [illegible] WORK [illegible]

Xian SHAANXI RIBAO in Chinese 20 Nov 81 p 1

[Article: "Translates Agricultural Testing Results into Productivity Positively, Weigong County Does 10 Things to Develop Agriculture; Disseminates Scientific and Technical Knowledge; Preliminarily Readjusts Cotton and Oil-bearing Crop Patterns; Gives Attention to Both Use and Nurture of Soil; Summarizes Experiences of the Masses to Develop Intercropping of Cotton and Barley; Reforms Farming System Promoting Early Maturing High Yield Varieties; Takes the Path of Combining Farming and Livestock Raising; Devotes Strenuous Efforts to Forestry, Developing Fuelwood Trees; Opens Up New Prospects With Development of Foreign Trade Products; Makes Strenuous Efforts to Tap Potential From and Equip Water Conservancy Projects; Applies Farm Techniques to Promote Contracts Linked to Output, Implementing Results of Testing"]

[Text] Editor's Note: This is an article about reliance on science in running agriculture. We frequently require that the current year's agricultural production be greater than in the previous year, and sometimes the extent of increased output required is considerable. Nevertheless, the technical measures necessary are given insufficient attention and not implemented; consequently, the desired increased production goal is also unattainable. We have yet to completely figure out the natural laws of agriculture. Therefore, agricultural units and scientific and technical units should make further study, take firmly in hand agricultural science and technology and productivity, and become a powerful assistant to the CCP Central Committee in this regard.

Weigong County has given attention to the application of results of agricultural testing, translating them with all possible speed into productivity and doing 10 things to develop agricultural production.

1. Dissemination of scientific and technical knowledge. Surveys of agricultural resources obtained large quantities of firsthand materials. Following their comprehensive analysis to develop scientific data and the compilation of data and charts, scientific and technical knowledge was disseminated throughout the county. The county operated an exhibition room on zoning results and organized

cadres above the production team level and technicians and representatives of the masses for regular rotational inspection and study of these results. They also made comprehensive observation reports, organizing county and commune cadres to listen to them.

2. They pertinently readjusted the cotton and oil-bearing crop patterns. Observation and study of climatic resources showed Dupang County to be a marginal area for the growing of cotton. Cotton can be grown there, but heat resources place rather severe limits on development of cotton production. On the other hand, upland plains areas are rather ideal growing areas for oil-bearing crops. Consequently, beginning with the fall sowing last year, following approval by higher authority, cotton growing was reduced from 100,000 mu to 80,000 mu and oil-bearing crop cultivation was expanded to 20,000 mu. This year, despite damage from high winds in the late stage of growth, rape yields nevertheless averaged 218 jin per mu.

3. Attention to both use and nurture of soil. A general soil survey found that one of the main reasons for inconsistent grain yields is a decline in organic material and an imbalance between nitrogen and phosphate. They applied the results of these observations to make vigorous applications of organic fertilizer and to expand the area fertilized with phosphate, beginning with the fall sowing last year. Last year, more than 6,000 tons of phosphate were applied during the fall sowing. This was one-third more than in previous years. During the in-the-milk stage of wheat this spring, more than 60,000 mu of wheat was also sprayed with a petroleum growth promoter as a result of which wheat yields amounted to 100 jin per mu.

4. Summarization of experiences of the masses to develop intercropping of cotton and garlic. The experiences of the masses were summarized in the course of sowing to encourage the intercropping of garlic in cotton fields in Chuandao Prefecture and parts of the central plain area in production teams where water and fertility conditions are good and workforces ample. This year a garlic crop was harvested from an area of more than 17,000 mu, more than double that of 1979.

5. Reform of farming system with promotion of early maturing high yield varieties. During fall sowing in 1980, the wide and narrow row wheat growing area was 50,000 mu, a tenfold increase over the previous year. At the same time, attention was given early maturing, high yield varieties of wheat and corn for gradual solution to the conflict in summer and fall timing of the two kinds of grain.

6. Taking the path of combining farming and livestock raising. Full use was made of local advantageous conditions for breeding of superior varieties of livestock and poultry. One thousand permanent green feed storage cellars were newly built, which together with the former cellars this year stored 20 million jin of green fodder. They operated a feed processing mill, and gave attention to three major communes developing livestock production.

7. Strenuous efforts devoted to forestry with development of paulownia trees. This year was devoted mostly to the planting of trees in the four beaches (beside streams, roads, houses, and villages). Paulownia seedlings propagated

last year not only supplied the county's own needs, but 7 million of them were sold elsewhere for cash earnings of more than [illegible] that year. This year another 1,[illegible] mu of pastureds seedlings were given, and the area of the county newly interplanted with farm crops and pasturels trees increased by 2,[illegible] mu.

8. Opening up of new prospects with development of foreign trade goods. In addition to devoting efforts to cotton, oil bearing crops, and livestock earnings, this year the county also devoted attention to doing business in products for foreign trade. It developed 2,[illegible] mu of commodity chilli pepper, 1,[illegible] mu of flue-cured tobacco, and [illegible] mu of garlic. It plans to export 1,[illegible] tons of garlic, and [illegible] tun of chilli pepper making exports of 9 million yuan.

9. Making strenuous efforts to tap mined potential from and equip water conservancy projects. This year, efforts were directed to the fitting out of small projects to improve a 3,[illegible] mu irrigation area. From the inspection and repair of pump wells, it was possible to put 90 percent into operation for irrigation. Also promoted was irrigation of short rectangular squares for an increase in the water utilization coefficient.

10. Applying farm techniques of contracts linked to output, implementing results of testing. Prompt promotion of Sichuan's contracts linking technical guidance to output to give impetus to the use of the results of testing. The county put emphasis on its model contracts linking technical guidance to output to arouse the enthusiasm of commune members and localities.

[illegible]
[illegible] 4707/111

INCREASE IN NOVEMBER'S WHEAT SOWING AS TEMPORARY MEASURE DISCUSSED

Xian SHAANXI RIBAO in Chinese 23 Nov 81 p 1

[Article: "Initial Success in Feng County Disaster Relief Production Work; Area Sown to Wheat in County Exceeds Originally Planned Somewhat More Than 20,000 mu; Earnings from Economic Diversification and Industrial Sideline Occupations Amount to More than 2.8 Million Yuan"]

[Text] Feng County's county CCP committee has liberalized policies and broadened avenues; as a result preliminary results have been seen in self-help efforts in production.

The August flood disaster this year inundated 48,000 mu of Feng County's fallow wheatlands. This was 30 percent of the total amount of fallow wheatland. Unless a good job is done of fall sowing, commune members will face even greater hardships in their lives next year. For this reason, the county CCP committee and government decided to liberalize policies and enlarge the area sown to wheat. Slopes damaged by landslides and land damaged by flooding, as well as odd bits and pieces of land not easily cultivated by the collective, production teams designated in a uniform way for cultivation by commune members, the harvest going to whomever did the farming with exemption for three years from requisition grain procurement. This aroused the enthusiasm of the masses for production. Following liberalization of policies, the 20,000 mu originally planned to be sown to wheat changed to the actual planting of 140,000 mu, a more than 20,000 mu increase over the original plan. Zhangshipu Commune had originally planned to sow 10,000 mu, but ended up sowing 18,000 mu.

Concurrent with efforts in fall sowing were rather good achievements in economic diversification and industrial sideline production. Autumn crops damaged by flood and rainy, overcast weather were intensively cared for and promptly picked. State procurement units have already bought more than 120,000 jin of apples, more than 215,000 jin of walnuts, more than 24,000 jin of raw lacquer, more than 30,000 jin of Sichuan pepper, more than 9,000 jin of wood fungus, and 210,000 jin of medicinal herbs. In addition, commune members were encouraged and given support in brush planting and livestock raising, and knitting occupations. As of now, earnings from economic diversification have amounted to 2,110,000 yuan, and earnings from industrial sideline occupations have amounted to 710,000 yuan.

9411
CSO: 4005/144

INCREASED COTTON AND GRAIN YIELDS CREDITED TO CHANGED CROP PATTERNS

Jinan DAZHONG RIBAO in Chinese 11 Nov 81 p 2

[Article by Pingyuan County CCP Committee: "Use Dialectical Viewpoint in Guiding Grain and Cotton Production"]

[Excerpt] Following the Third Plenary Session of the 11th Party Central Committee, the CCP Central Committee formulated a series of policies for the development of agricultural production, called for vigorous development of cotton production, and actively launched economic diversification. On the basis of actual conditions in the county, we diligently studied implementation of pertinent programs and policies of the Central Committee, and organized cadres and the masses to review history and conscientiously summarize both the negative and positive lessons and experiences in agricultural production.

The Second Production Team of Dongpu Production Brigade in Dongji Commune gave attention to cotton for three years for ever increasing yields in each passing year, attaining bumper harvests in both grain and cotton. In 1977, it planted 130 mu of cotton for yields of 121 jin per mu. In 1978, it planted 130 mu for yields of 140 jin per mu. In 1979, it planted 160 mu for yields of 179 jin per mu. Bumper cotton harvests promoted grain harvests. Grain output rose from 210,000 jin in 1977 to 410,000 jin in 1979, a 91 percent increase, to make a double increase in yields for both cotton and grain and a double contribution. Average per capita value distributed to commune members went from 100 yuan in 1977 to 211 yuan in 1979.

From a foundation in unified cooperation, in 1980 we began to readjust crop patterns, taking cotton as our point of departure and basing ourselves on self sufficiency in grain, to vigorously developed cotton growing, taking the path of "taking both grain and cotton in hand at once with the emphasis on cotton," and "hugging a gold baby and a silver baby at the same time." We won a double bumper harvest in grain and cotton. In the more than 2,300 production teams in the 19 communes in the county, from top to bottom, echelon by echelon, arousal began, and on the basis of circumstances in each unit, grain and cotton growing plans were set. The county as a whole was divided into three categories. Communes and brigades with large population were relative to cultivated land to obtain self sufficiency in grain and contribute some cotton. The general run of communes and brigades where grainfield area would be reduced and cottonfield area increased. Communes and brigades where population was small relative to cultivated land in which each person would grow one mu of grain to assure adequate grain for consumption, and plant more cotton to make a greater contribution. Following readjustment, the cottonfield area increased

[illegible]

[illegible]

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[illegible] Shanxi Province's first automatic wheat processing production line was recently certified by authorities concerned and had gone into operation in the Datong No.1 Wheat Flour Mill. The length of this production line from the unloading of wheat from freight cars to conveyance into the granary and on into storage measures 600 meters and is composed of three parts to move the wheat from the unloading pit to storage silos. In the wheat unloading pit alongside the road has been built a 100-meter-long railroad track that can accommodate eight railroad cars and permit unloading of grain from both sides of freight cars at the same time. Operations go on normally despite rain or snow. Formerly the unloading of 30 tons of wheat from a railroad car took five man-hours to complete. Now, however, using the wheat unloading pit to unload the cars taken only four man-hours to complete for a shortening of unloading time and an increase in labor efficiency. Following testing, the entire production line was found to operate properly and with very good results, annually saving the state more than 100,000 yuan in costs of various kinds. (Text) [illegible] HSIAO HSIAO in Chinese 5 Nov 81 p 1] 9411

[illegible]

[illegible]

[illegible] GRAIN PURCHASE QUOTAS BENEFIT RURAL RESIDENTS

[illegible] HUNAN RIBAO in Chinese 20 Nov 81 p 1

[Article: "Broad Masses of Commune Members Mindful of Overall Situation in Bumper Harvest; Reports Will Again Be Made, the Key Providing Support for the Loan, Province Fulfills State Requisition Grain Procurement Quotas, People in Disaster Areas Content; Market Grain Prices Stable; Social Order Secure"]

[Text] As of 20 November, Hunan Province had fulfilled state requisition grain procurement quotas by 100.5 percent. The speed of movement into storage was more rapid than in former years, and grain quality was better than in former years. The Hunan autonomous prefectures and cities of Changsha, Zhuzhou, Xiangtan, Hengyang, Shaoyang, Yueyang, Yuexi, and Yibin all fulfilled their quotas ahead of schedule.

The very good fulfillment of grain requisition procurement quotas in a year of great natural disaster resulted from the deep popular support for the various rural economic policies instituted since the Third Plenary Session of the 11th Party Central Committee, particularly the gradual promotion and perfection of various forms of a system of responsibility for production, which aroused extreme enthusiasm for production among the broad masses of commune members. In the aftermath of natural disaster, the close attention and concern shown by the Central Committee and the State Council, and the vigorous support given by provincial provinces, municipalities and autonomous regions also provided the people in disaster areas with tremendous strength. In addition, timely adoption of a series of major actions by the Provincial CCP Committee stirred the enthusiasm of the broad masses of commune members to resolve problems and reduce losses from the disaster. Total output of grain this year was higher than the all time high year of 1980, providing a material foundation for the fulfillment of state requisition grain procurement quotas.

All levels of the party and government have strengthened leadership over requisition procurement work. In view of the circumstances of this year's disaster and resulting reductions in production and distribution, they have diligently investigated and studied, and in line with the policy of taking account of the welfare of the state, the collective, and commune members, and the situation of plenty or scarcity in grain production in different areas following the disaster, they promptly readjusted grain requisition procurement quotas. In severely afflicted areas, the amount of requisition procurement was reduced by more than 100 million jin while at the same time arrangements were made to sell back to the producers more than 100 million jin of grain to ease the difficulties in implementation of a policy of not reselling procurement

of grain and having true consideration for the livelihood of the masses in disaster stricken areas. Now the people in disaster areas are content, market grain prices are stable, and social order is secure. In lightly stricken areas and in areas undisturbed by disaster, the broad masses of rural cadres and commune members have carried forward the communist work style, eagerly selling extra grain, using the fat to help the lean and give support to disaster areas.

8432
CSO: 4007/143

BUMPER OIL-BEARING CROP HARVESTS REPORTED

Tianjin TIANJIN RIBAO in Chinese 27 Nov 81 p 1

[Article: "Heartening Bumper Harvest This Year From City's Oil-bearing Crops, Requisition Procurement Quotas For Oil Already Overfulfilled by 82 Percent"]

[Text] This year Tianjin's rural villages reaped a bumper harvest of major oil crops including peanuts, sunflower seeds, flax seed and sesame seed. Preliminary statistics show oil-bearing crop production totaling more than 72,48 million jin, a 30 percent increase in output over the bumper harvest year of 1980, the increased output of sunflower seeds being greatest rising 66 percent over last year. As of mid-November, the city had sold the state 9.1 million jin of oil to 182 percent fulfillment of the 5 million jin requisition procurement quota handed down by the state.

The city's bumper harvest of oil-bearing crops this year resulted from all levels of CCP committees and the People's Government having actively readjusted the internal structure of agriculture, and having steadily strengthened and perfected systems of responsible linking remuneration to output. In the implementation of this year's planting plans, all places gave general attention to making the most of local advantages, for an expansion in the oil-bearing crop growing area through adaptation of general methods to local situations. The area sown to oil-bearing crops in the city totaled 659,000 mu, a 46 percent increase over last year. In addition, systems of responsibility, including assignment of output quotas to individual able-bodied laborers, contracting work tasks to individual households, or contracting for specialized jobs were implemented to arouse the enthusiasm for production of the broad masses. The broad masses of commune members actively pitched in, provided manure, and painstakingly cared for the crops to assure a tremendous increase in total output of oil-bearing crops. In Wuqing County, and in the northern suburbs and Jinghai County, output of oil-bearing crops this year totaled 10 million jin and more than 20 million jin respectively. Following the bumper oil-bearing crop harvest, the broad masses of commune members eagerly sold them to the state, and have overfulfilled by almost 100 percent state requisition procurement quotas. Wuqing and Baodi counties and the western and southern suburbs have tremendously overfulfilled requisition procurement quotas.

9411
CSO: 4007/144

MANY RURAL FINANCIAL FIGURES REVEALED

Kunming YUNNAN RIBAO in Chinese 14 Nov 81 p 1

[Article: "Rural Financial Picture Bright throughout Province During First 9 Months of This Year. Agriculture increases output; Sideline occupations increase Earnings. Business Lively"]

[Text] The rural financial situation in the province for the first 9 months of this year has been better than for the same period last year. Rural savings deposits reached an all time high, and the rate of recovery of farm loans has been higher than the national average.

The province's agricultural banks and credit cooperatives have supported rural communes and brigades as well as individual commune members with loans totaling 258.19 million, a 19.98 million yuan increase over the same period last year. Of the total sum, loans used for the support of grain production amounted to about 48 percent, and loans used to support economic diversification by communes, brigades and commune members amounted to about 52 percent. These played a positive role in promotion of comprehensive development of agricultural byproducts production.

As a result of rural establishment of various forms of a system of responsibility for production, commune member loans have risen greatly throughout the year. Commune member loans as a ratio of total agricultural loans went from last year's 13.2 percent to 15.7 percent. Of the loans to commune members, 90 percent were used for production; only about 10 percent were used for the building of houses, treatment of illness and such livelihood expenditures.

Accompanying development of agricultural byproducts production and steady increase in commune member income has been a great increase in commune member savings this year. As of the end of September, total rural market town savings deposits and commune member savings together totaled an increase over the same period last year of 17.5 percent, creating an all-time high. On the basis of the agricultural population, savings averaged 10.08 yuan per capita. This year commune, brigade, and commune member initiative in repaying farm loans has also been higher than in previous years. Between January and September, accumulated recovery of farm loans amounted to 190.89 million yuan or 71 percent, which is higher than the national average.

this year Yunnan Province had a bumper harvest of agricultural byproducts, and banks and credit cooperatives at all levels did their best to accommodate procurement and marketing with loans, settling of accounts, and supplying cash in the process of giving support to procurement of agricultural byproducts. They streamlined procedures, virtually guaranteeing needs for cash in the procurement of agricultural byproducts.

9417
CSO: 4007/144

BRIEFS

FOUR-YEAR AGRICULTURAL INVESTMENT--Taipei, 4 Jan (CNA)--The government has worked out a 4-year investment plan for future agricultural development in the Taiwan area. According to the plan drawn out by the council for agricultural planning and development, the government will strengthen investment in the following projects: Water Conservancy: To complete regional irrigation and drainage systems for 15 rivers repair and build new waterwalls, construct a waterway upstream [on] the Beinan, and improve 14 water conservancy facilities at other lower areas. Exploitation of Land Sources: To rearrange 80,000 hectares of farming lands, exploit 30,000 hectares of slopelands, build anti-floods projects at the upstream areas of Wu River, Chushui River and Pachang River and the Eastern Taiwan and Northern Lanyang regions, and build 100 kilometers of roads in the remote areas. Farming Products: To build new storehouses for rices and fertilizers and promote agricultural mechanization. Forestry, Fishery, and Stockbreeding: To open more recreational areas, afforest 20,000 hectares of lands, construct more fishing ports and large fishing boats, develop fish culture in coast and in-land areas and import 3,000 dairy cattle to raise self-supply of milk. Transportation and Marketing: To modernize market facilities, improve transportation and sales of stockbreeding products and strengthen sanitary checks on meat products. Raise Living Conditions in Rural Areas: To improve sanitary circumstances in rural communities, construct 21,000 houses for farmers, set up public service branch offices in the remote areas and strengthen roving medical service there. [Text] [OW040321 Taipei CNA in English 0219 GMT 4 Jan 82]

RICE AID TO INDONESIA--Taipei, 5 Jan (CNA): A total of 1,000 tons of rice donated by the Republic of China to the Indochinese refugees started shipment from the port of Taichung Monday and is expected to arrive at Singapore 13 January. The rice will be conveyed to the Indonesian Red Cross for distribution. Not long ago, the ROC donated 1,000 tons of rice for emergency use to Indonesia. The additional 1,000 tons of rice were shipped in response to a request by the Indonesian Red Cross. Its representative arrived in Taipei last September to meet Dr Ku Cheng-kang, president of the Free China Relief Association, and made the request. [Text] [OW070209 Taipei CNA in English 0214 GMT 5 Jan 82]

CSO: 4020/74

AUTHOR: None

CORP: National Coordinated Research Team on Rice Leaf Roller

TITLE: "Advance in Studies on the Migration of Rice Leaf Roller Cnaphalocrocis medinalis Guenee in China"

SOURCE: Beijing ZHONGGUO NONGYE KEXUE [SCIENTIA AGRICULTURA SINICA] in Chinese No 5, 20 Oct 81 pp 1 8

TEXT OF ENGLISH ABSTRACT: Systemic studies on the rules governing the occurrence of the rice leaf roller (Cnaphalocrocis medinalis Guenee) were conducted in China beginning in 1964, while studies on the characteristics of long distance migration of this insect were conducted beginning in 1974. The results of experiments on the cold tolerance and hibernation of the insect indicated that the regions of overwintering could be divided according to the isotherm of average temperatures in January. The areas south of 15°C isotherm were "regions of growth throughout the year", the areas of 5-15°C were "regions of hibernation", and the areas north of 5°C were "regions of winter death."

According to the division of hibernating regions, the simultaneous sudden increase of moths, the catching of moths from air and sea surface, the reproductive diapause during migration, the phenomenon of occurrence of homotypic moths, and the recovering and release of the moths by colored markings, the characteristics of migration

[Continuation of PINGUANG NONGYE KEXUE No 5, 20 Oct 81 pp 1-8]

were clarified and the regions of outbreaks were discovered. These results showed that there are five migrations from south to north and three southward reversed migrations in the eastern part of China.

Vertical migrations in the mountainous regions and the mechanism of migration were also investigated. A national network for the joint forecast of the rice leaf roller was organized, and interim forecasts of the insect's occurrence and migration have been issued.

Author: None

Org: The Rice Leaf Roller Coordinated Research Group in Hunan Province

Title: "Studies on the Overwintering Pattern of the Rice Leaf Roller Cnaphalocrocis medinalis Guenee"

Source: Beijing Zhongguo Nongye Kexue [SCIENTIA AGRICULTURA SINICA] in Chinese No 5, 20 Oct 81 pp 9-16

Text of ENGLISH ABSTRACT: From 1977 to 1980, we set up research points in northern, central and southern Hunan to investigate and study the hibernation of the rice leaf roller, Cnaphalocrocis medinalis Guenee. Results obtained in eight years have proved that the rice leaf roller hibernates as pupae from larvae of the fifth generation in the stubble of late rice and weeds on the sides of fields, canals and ditches in Hunan Province. Investigations indicated that the hibernating pupae could normally emerge and remain as efficient hibernating resources in the regions with average temperatures of 1°C in January. The increase or decline of the field population of the first generation of the rice leaf roller was closely related to its fundamental hibernating amount. The pupating and emerging pace of the last generation coincided with the occurrence of the new generation, and there were corresponding peaks of emergence between the last and new generations, with the index of abundance being less than 1. The relation between population fluctuation

[Continuation of ZHONGGUO NONGYE KEXUE No 5, 20 Oct 81 pp 9-16]

of the rice leaf roller and transfer of insect resources was revealed through investigation. The main resources of the rice leaf roller causing damage to rice in Hunan Province have been further proved to be of local origin.

AUTHOR: None

CORP: National Coordinated Network of Forecast for Rice Leaf Roller

TITLE: "The Occurrence of the Rice Leaf Roller and Its Forecast in China"

SOURCE: Beijing ZHONGGUO NONGYE KEXUE [SCIENTIA AGRICULTURA SINICA] in Chinese No 3, 80 pp 17-24

TEXT OF ENGLISH ABSTRACT: In recent years the rice leaf roller (Cnaphalocrocis medinalis Guenee) has become a serious pest of rice in China. The research of the last several years indicates that the rice leaf roller is marked by the characteristics of long distance migration. By dissecting the female reproductive systems successively during the whole growing season of rice in different places, we found that while in the emigrating areas the female ovaries were mainly in the first stage, those in the immigrating areas were well behind the third stage. A schematic diagram is drawn to show the routes of seasonal mass migration of the insect. Results mentioned above led to the establishment of a nationwide network of forecast for the rice leaf roller in 1978. From 1978 until 1980, according to the occurrence of this pest in the emigratory areas as well as the weather forecasts in the corresponding immigrating areas, we released forecasting information for the immigratory areas four to five times each year. These forecasts generally coincided with the occurrence of this pest.

AUTHOR: None

CORP: National Coordinated Research Group for White Back Planthoppers

TITLE: "Studies on the Migration of White Back Planthoppers (Sogatella furcifera Horvath)"

SOURCE: Beijing ZHONGGUO NONGYE KEXUE [SCIENTIA AGRICULTURA SINICA] in Chinese No 3, 80 pp 25-31

TEXT OF ENGLISH ABSTRACT: Results of a study on the migration rules of the white back planthopper are given in this paper. The study was conducted by 80 units from 19 provinces of China. Light trap field investigations and a series of methods, such as the use of alpine nets, plane catch, ship catch, the recapture of the color labeled insects and dissecting of female ovaries, etc., were adopted to study the southward and northward migration of the white back planthoppers in China. Results showed that in warm winter years the northern limit of overwintering for the insect was about 28°N, with a low survival rate after overwintering. The main insect population of south China in the early spring came continuously from the Indo-China Peninsula from March to June, being carried over by the southwesterly atmospheric current. After producing one or two generations in the southern paddy fields, the population gradually migrated northward with the southwesterly or south-southwesterly airflow. After mid and late August the north is controlled by a cold

[continuation of abstract entry #9410 No 9, 20 Oct 81 pp 75-77]

atmospheric pressure, and the white back planthoppers in the northern paddy fields migrated back southward along with the northeasterly atmospheric current. The regions infested by the white back planthoppers are divided into 5 belts and 10 sub belts as forecasting bases according to the time of damage to the rice and other factors.

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TITLE: "A Preliminary Study of the Combing Qualities of Chinese Rice Varieties (I). Article I"

SOURCE: Beijing Nongye Daxue Xuebao [ACTA AGRICULTURAE BOREALI-SINICA] in Chinese No 9, 20 Oct 81 pp 17-28

TEXT OF ENGLISH ABSTRACT: The combing qualities of 75 varieties of xian (indica), geng (japonica) and waxy rice types have been studied. The results indicate that most of the xian varieties have high amylose content (AC), intermediate gelatinization temperature (GT) and hard gel consistency (GC); while most of the geng varieties have low AC, low GT and from soft to medium GC; and nearly all of the waxy varieties have from zero to trace AC, low GT and soft GC, respectively. However, there were a few exceptional cases in the different types of rice. A linear correlation was found between any two combing characteristics in the 75 varieties, but the partial correlation analysis showed that only the relationship of AC and GC was significant. In addition, there were no linear correlations between different combing characteristics within the xian or geng types except the relationship of AC and GC in the geng type. The improvement of the combing quality of Chinese rice is also discussed in this paper.

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Inst: Northwestern Agricultural College

Title: "The Ecological Characteristics of Different Spike Types of Broom Corn Millet (Panicum miliaceum L.) and Their Implication in Breeding and Cultivation"

Source: Acta Phytoecologica Sinica [ZHIWUSHENGTAI XUEBAO] in Chinese No 3, 20 Oct 81 pp 37-61

[Text of English Abstract] The morphological characteristics of five spike type groups of broom corn millet are described in this paper. The results of our study emphasized that various groups of broom corn millet spike types are an important criterion for determining their ecotypes. The conclusion is based on the following facts:

(1) The regular distribution of the groups in the main broom corn millet growing districts. It is observed that from the south to the north of China, the areas occupied by the varieties of Tabulum Af. and Patentissimum Pop. gradually increase, but those of Confractum Af., Chutum Pop. and Compactum Kern, gradually decrease. The same conditions also exist in the irrigated and non-irrigated millet growing areas.

(2) The change of the planting proportion of these groups within an area in accordance with the cultivation conditions;

(3) The obvious difference of these groups in their agronomic characteristics, such

[Continuation of PHYTOECOLOGICA SINICA No 3, 20 Oct 81 pp 37-61]

as plant height, spike length, number of grains produced per spike, the 1000 seed weight and the rate of tillering, etc.

It is considered that the particular structure of the cathode of these groups is an adaptive response to the environment during the prolonged process of their phylogenesis. Therefore, through ecological research into the groups with different spike types would be helpful for the cultivation, breeding and introduction from abroad of broom corn millet.

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Title: "Effects of Climatic Conditions on the Yield of Rapeseed"

Source: Beijing ZHONGGUO NONGYE KEXUE [SCIENTIA AGRICULTURA SINICA] in Chinese No 3, 90 pp 83-87

[Text of English Abstract] The present paper reports that the relationship between accumulated temperature, precipitation, hours of sunlight and the yield of rapeseed was analyzed by multiple regression, resulting in a significantly different F value in precipitation only. For this reason the main climatic factor which affects the yield of rapeseed is the rainfall during the growing season, and the critical periods are the seedling stage, pre-winter and the pod developing stage. The correlation coefficient and the linear regression equation among the growing duration, the seedling pre-winter, the pod developing stage and yield of rapeseed can be expressed as follows: y = 0.0002xx, F = 222.1300 = 0.1626; y = 0.1158, F = 165.9983 = 0.2000; y = 0.0002xx, F = 187.1800 = 0.1621. The relationship between hours of sunlight and the crop yield is manifest only at the pod developing stage, with a positive correlation of r = 0.4164, F = 31.185 = 0.3400. In order to obtain a stable high yield of rapeseeds, it is necessary to select moisture tolerant varieties, lower the underground water level and reduce the soil moisture.

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Title: "Studies on the Cell-mediated Immunity of Horses Immunized with Equine Infectious Anemia Live Vaccine"

Source: Beijing ZHONGGUO NONGYE KEXUE [SCIENTIA AGRICULTURA SINICA] in Chinese No 3, 90 pp 81-86

[Text of English Abstract] The purpose of these studies is to investigate whether the donkey leucocyte culture attenuated vaccine of equine infectious anemia (EIA) could induce cell mediated immunity (CMI) in horses and what role the CMI plays in the protection against EIA. The authors examined 82 horses and 20 donkeys vaccinated in the laboratory, 22 horses vaccinated in the field, 12 horses and 9 donkeys experimentally infected with EIA virus, and 21 non-vaccinated horses and 58 donkeys for controls.

In both the erythrocyte rosette (ER) and active T rosette (ATR) formation tests, the percentages of ER and ATR formation of the vaccinated horses declined steadily

[illegible] (Continued from previous page) [illegible]

during the three to five months post vaccination, and thereafter returned to normal or almost normal [illegible]

When the peripheral lymphocytes of vaccinated horses and the cells infected with EIA virus (target cells) were mixed and cultured, the sensitized lymphocytes and the target cells could form specific rosettes, and thus the target cells were destroyed.

In the lymphocyte migration inhibition (LMI) assays for vaccinated horses, the lymphocyte migration areas of the peripheral groups (in the presence of antigen) were smaller than those of the control groups (in the absence of antigen), and the differences between these groups were statistically significant. The LMI positive reaction could last for at least 3 years (6 months, thus much longer than that caused by complement fixing antibodies. The results demonstrated that LMI was induced in the immunized horses.

To evaluate the effect of LMI on the protection against EIA adoptive immunization experiments in donkeys with the peripheral lymphocytes and the LMI preparations, i.e., transfer factor (TF) and lymphocyte mitogenic acid (LMMA), from vaccinated horses in donkeys were carried out. After challenge with virulent EIA virus, TF and LMI animals were protected respectively. However, both groups of animals

[illegible] (Continued from previous page) [illegible]

[illegible] the sera from immunized horses in donkeys and receiving the LMI prepara[illegible] from normal ones, each containing six donkeys, only LMI and four finally died, and of the control donkeys, three out of three were ill with two finally dying.

From the results the authors concluded that in horses immunized with EIA live vaccine the induced LMI was essentially parallel to the protective function against EIA.

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[illegible]
F. A. Pitan

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[illegible]: "Study on Use of Sex Pheromone for the Identification of Insect Pests"

[illegible] Bulletin Philippine Entomologist (Asia Entomological Bulletin) in Chinese No. 1 Vol. 81 pp 150 [illegible]

[illegible] of Abstract: In August 1979, a field test with one kind of Asian corn borer sex pheromone and three kinds of European corn borer pheromone with different ratios of mixing components was conducted in a corn field near Diliman. The results showed that the Asian borer sex pheromone (Z) 11-tetradecen-1-ol acetate, (E) 11-tetradecen-1-ol acetate and tetradecyl acetate 15:10:07, tested for 11 days using 100 pairs/trap, captured 71 moths, the effect being significant. The European borer sex pheromone (Z) and (E) 11-tetradecen-1-ol acetate 97:3 and 3:97 were used, only these moths were captured by the former and two moths were attracted by the latter, indicating these pheromones have certain specificities. However, the European borer sex pheromone (Z) and (E) 11-tetradecen-1-ol acetate 10:90 captured no moths, indicating it has no active capacity. Therefore it may be concluded that: (1) the corn borers in the

[illegible] of Plant Protection Bulletin No. 4, Vol. 81 pp 150 [illegible]

Planting region of Asian Province are mainly Asian corn borers; further study and identification of a large number of specimens are needed to determine whether there are European corn borers; (2) rubber septa impregnated with sex pheromone have better effects than those impregnated in capillaries, and (3) the effect of using water basin traps is better than that of using "Pheromone" traps.

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TITLE: "A Study of Hybridization between *Triticum aestivum* and *Haynaldia villosa*"

SOURCE: Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese No 4, Dec 81 pp 340-343

TEXT OF ENGLISH ABSTRACT: Although the hybridization between *Triticum aestivum* and *Haynaldia villosa* is very difficult, we have found two strains in common wheat with prominent compatibility in crossing with *Haynaldia villosa*. The percentage of seed setting of the two combinations between the common wheat Pai Li Gao 18-1-1, (7182-8 (1 1 x 7014Nd$_2$))F$_1$ and *H. villosa* were 5.2 percent and 10.2 percent respectively. The morphology of the F$_1$ plants appeared to be intermediate between their parents. The pollen grains of F$_1$ plants were abortive. The average number of bivalents per cell at the first metaphase of meiotic division of PMCs derived from F$_1$ plants of both crosses were 1.66 and 2.29 respectively. The percentage of seed setting of the F$_1$ hybrids pollinated with parental strains was 1.9 percent and 7.3 percent respectively.

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TITLE: "Comparison between the Two-rowed Wild Barley of the Qing-Zang Plateau and That of Israel"

SOURCE: Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese No 4, Dec 81 pp 344-349

TEXT OF ENGLISH ABSTRACT: Two-rowed wild barley is the ancestor of modern cultivated forms and is important in studying the origin and evolution of the cultivated form. Recently it has been found that the two-rowed wild form is widespread in the Qing-Zang Plateau and that of Israel is derived from another barley-growing center around the "fertile crescent" belt in the Middle East.

Cytological analysis of the above two forms reveals that both have seven pairs of chromosomes as does cultivated barley. There are two satellite chromosomes, 6 and 7, with chromosome 6 having a longer satellite than chromosome 7.

Field examination shows that those of Qing-Zang are spring habit, rust-susceptible, with a height of 91.1 ± 8.5 cm, a growing period of 77 ± 2.6 days, and an anther of 1.4 ± 0.107 mm in length. The Israel type is weak winter habit, strongly resistant to rust, with a height of 64.4 ± 9.4 cm, a growing period of 86 ± 0.85 days and an

[Continuation of YICHUAN XUEBAO No 4, Dec 81 pp 344-349]

anther of 5.1 ± 0.109 mm in length. The value of plant height, the growing period and the anther length between both types are 6.67 > $t_{0.01}$, 10.75 > $t_{0.01}$, respectively.

According to morphological identification, the individual ratio of (1) the awn length, (2) triplet density, (3) the ear stalk length, (4) the villus length of ear stalk of the triplet and (5) the 1000 grain weight between the two-rowed wild barleys from Qing-Zang and Israel is (1) 3.8 ± 1.17 cm; 15 ± 3.46 cm, t = 18.4 > $t_{0.01}$ (2) 10.6 ± 1.4; 7.8 ± 0.92 triplets per 4 cm of length, t = 4.84 > $t_{0.01}$ (3) 1.8 ± 0.26 mm; 2.9 ± 0.12 mm, t = 7.0 > $t_{0.01}$ (4) 0.63 ± 0.05 mm; 0.91 ± 0.114 mm, t = 6.78 > $t_{0.01}$ (5) 17 ± 0.49 g; 24.0 ± 0.4 g, t = 5.67 > $t_{0.01}$, differences of these characteristics being significant at the 1 percent level.

Esterase isoenzyme patterns observed after polyacrylamide gel electrophoresis show that there are some obvious differences between them.

There is a polymorphism of spectes in the Qing-Zang barley. It has, however, no spontaneous population, while that of Israel has.

The results obtained from the comparison between these two types show that the relation of the two- to six-rowed wild form of Qing-Zang barley is closer than that of Israel in evolution. It may be considered that the former is an intermediate type from primitive two-rowed form to six-rowed wild form.

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TITLE: "Some Aspects of Morphological and Physiological Characteristics of 'Naked seed' Rice"

SOURCE: Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese No 4, Dec 81 pp 344-349

TEXT OF ENGLISH ABSTRACT: A "naked seed" rice, which is different from both Nuda and Textorium, is studied. Its morphological appearance and physiological characteristics are as follows: Inflorescences are open panicles, slightly diffused with capillary branches. Laterally compressed spikelet with one to five florets, usually only one fertile, rarely two, the upper florets usually incomplete or abortive. Lemma prominent five to six nerves, carinated, edge membranous about 12.25 mm long. Palea bipartite or bidivided, edge membranous, 4.5 mm long. Pistil one or two to three, stamens zero to six; diameter of pollen grain is about 40 μ; caryopsis long ovate or elliptic; starch grain compound; embryo small and waisted; vascularization slight, traces to coleoptile at same level as mesocotyl; epiblast present; colored rhizoids attached to scutellums at proximal end; margins of first leaf overlapping.

[Continuation of YICHUAN XUEBAO No 4, Dec 81 pp 350-359]

thus the embryo is designated as of the F 1 FP type.

According to the flowering responses of this plant to photoperiod and temperature, the "naked seed" line is supposed to a short-day and thermophilous plant.

In addition, the electrophoretic pattern indicates that its peroxidase isozyme of the leaf is similar to that of rice, but different from that of wheat; however, that of the glumes is neither like the rice nor the wheat. As for the PGM isozyme, that of imbibed seed and glumes is similar to that of rice, but not of wheat. Therefore, the data on these two isozymes are in agreement with those of the morphological features.

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Title: "A Preliminary Study of Hereditary Variability of Quantitative Characteristics from Pollen Plants in Spring Wheat"

Source: Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese No 4, Dec 81 pp 341-348

TEXT OF ENGLISH ABSTRACT: This paper deals with the study of the genetic expression of five quantitative characteristics, i.e., plant height, ear length, number of seeds per ear, 1000 seed weight, seed weight per plant, of pollen plants derived from F_1 hybrids of Triticum aestivum by anther culture. The results are shown as follows:

1. There is diversity in plant height, ear length, number of seeds per ear, seed weight per plant of pollen plant lines derived from F_1 hybrids of spring wheat.
2. Relative genetical uniformity in quantitative characteristics occurs among the offspring of the same pollen plant line. There is greater diversity in quantitative characteristics of offspring of the same pollen plant derived from F_1 hybrid, one parent of the hybrid being an offspring of remote hybridization.

[Continuation of YICHUAN XUEBAO No 4, Dec 81 pp 161-168]

1. No significant difference in vigor for plant height and 1000-seed weight is observed between different generations from the pollen plant of the same line

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TITLE: "Correlation between the Hybrid Vigor and Weight of Embryos, Content of RNA, DNA during the Germination of Seeds in Maize"

SOURCE: Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese No 4, Dec 81 pp 373-379

TEXT OF ENGLISH ABSTRACT: The present paper reports the experiments on 10 single hybrids of heterosis maize and their parents. During germination of seeds (including embryo bud, embryo axis, embryo root) using embryo as material, we determined the content of DNA, RNA and total N, and we calculated the cell number, observing relative sections of the embryo. Results obtained showed that the content of RNA, DNA and total N in the embryo of heterosis hybrid increases more sharply that that of its parent, the result being identical.

From the observation of tissue sections of single hybrid 128 and its parent V 8122, Hong Xiao 162, it may be seen that the tissue of hybrid embryo differentiates faster, and organs differentiate clearly and develop well.

[Continuation of YICHUAN XUEBAO No 4, Dec 81 pp 193-199]

All this demonstrates that hybridization has a deep influence on the development of the embryo and content of RNA and DNA in the embryo, and there exists a positive relationship between hybridization and the development of the embryo and the content of RNA and DNA in the embryo.

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TITLE: "Induction of Haploid Plantlets from Unpollinated Ovaries of Triticum aestivum Cultured in Vitro"

SOURCE: Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese No 4, Dec 81 pp 188-190

TEXT OF ENGLISH ABSTRACT: Investigations have been made on ovary and ovule culture and plantlets were regenerated from cultures. The regeneration of plantlets from unpollinated ovaries cultured in vitro was first reported in 1979. This paper presents the further results of those experiments in detail.

In the preliminary experiments, all the regenerated haploid plantlets were derived from differentiating callus. In the subsequent experiments, green, healthy haploid plantlets with 10 tillers and strong root systems were obtained through the direct development of ovaries. It was cultured in vitro instead of through regeneration of the callus and transferral to the differentiation medium. The tillers of the plantlets were separated from each other and cultured

[Continuation of YICHUAN XUEBAO No 4, Dec 81 pp 386-391]

individually. Many new healthy plantlets were grown with subsequent tillers. The results denoted that healthy haploid plantlets could develop directly on the medium with suitable components and under the available conditions.

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TITLE: "Numerical Simulation of Typhoon Development along the Tropical Convergence Zone"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 4, Nov 81 pp 394-407

TEXT OF ENGLISH ABSTRACT: The development of typhoon No 7503 (ORA) along the tropical convergence zone is simulated with a five-level primitive equation model, including large-scale and convective condensation, surface friction, sensible and latent heat exchanges between the sea and the air. Initial wind is estimated by means of the balance equation in σ-coordinate.

The asymmetrical distribution of wind and temperature is obtained. Results of experiments from different initial states show that: (1) the strong horizontal shear between east and west wind on two sides of the convergence zone is probably a

[Continuation of QIXIANG XUEBAO No 4, Nov 81 pp 394-407]

unique condition for formation of the typhoon, (2) surface disturbance plays an important role in the process of typhoon development and (3) the channel of moisture from the large-scale environment is an important factor for initiation and development of typhoons.

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Title: "A Preliminary Study of Acidity in Precipitation over the Urban Area of Nanjing"

Source: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 4, Nov 81 pp 440 444

Text of English Abstract: In this paper, some data of pH in precipitation samples over the urban area of Nanjing during the period from November 1979 to July 1980 is given. The results show that the pH values vary from 4.10 to 7.91, with a mean value of 5.62. Acid rains appeared in January and July 1980, with mean pH values being 5.37 and 5.26 respectively. The results are compared with results of observations in Japan, England and the United States.

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Title: "The Statistical Characteristics of Areal Rainfall and the Effects of Randomized Cloud Seeding Experiment in Sutian, Fujian"

Source: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 4, Nov 81 pp 474 481

Text of English Abstract: From April to June, 1975, 1977 and 1978, a randomized cloud seeding experiment with metaldehyde (MA) and silver iodide (AgI) from the ground by small rockets was carried out in the Sutian Reservoir area, Fujian Province. In this experiment, the design of randomized regression of the area was used and the experimental effect was evaluated with the two sample regression analysis with unequal residual variances. The experimental objects were mainly the stratiform and cumuliform clouds under the influence of a precipitating weather system, and the period of three hours was taken as the experimental time unit. The experimental units selected totaled 101, 50 of them were seeded and the others were unseeded as controlled by randomized procedure. The statistical analysis indicated that: (1) the normality of the transformation of areal rainfall

[continuation of YINYAN XUEBAO No 4, Nov 81 pp 494 498]

was very good, in which the goodness of fit reached 0.99 and the correlation coefficient of this natural index between the two experimental areas exceeded 0.82; (2) the difference between the residual variances of seeding and of control samples in the regression analysis might be significant, hence it was necessary to use the two-sample regression analysis method with unequal residual variances for testing the seeding effect; (3) the average rainfall in the target area (1300 km^2) was increased about 20.1 percent by seeding, with a significant level of 0.05 (one-side test); (4) the seeding effect under frontal weather was 20.6 percent on the average (p = 0.03), which was most favorable for seeding under the various weather conditions; (5) the relative seeding effect was larger when natural rainfall was small, and decreased with the increasing of natural rainfall in the control area; when it was more than 1 cm/h^{-1}, the effect was not significant; (6) the area of effect exceeding 20 percent extended 10 to 30 km downwind of the operation set, and its width was about 20 km; (7) the difference between seeding effects of AgI and AgI was not significant, although the amount of ice release of AgI was about 10 times larger than that of AgI

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Title: "The Summer Anomaly Low Temperature of Chinese Northeast Region in Connection with the Activity of 100 mb Level Polar Vortex and South Asia High Pressure"

Source: Beijing YINYANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 4, Nov 81 pp 481 488

TEXT OF ENGLISH ABSTRACT: In this paper, we have computed the geopotential anomaly field and the latitude-zonal-wise wind velocity of the northern hemisphere 100 mb level. It is discussed that the activity of the polar vortex and the South Asia high has a connection with the summer low temperatures of the Chinese Northeast Region. The following conclusions were obtained:
1. The anomalous cold summer in the Chinese Northeast Region is caused by the weak South Asia high and the usual activity of polar cold air in middle latitudes.
2. The winter (November to February) 100 mb level Pacific high has a connection with the summer South Asia high. Their correlation coefficient is 0.82.
3. It is shown that there are three kinds of frequency graphs of five months (January to May) 100 mb level polar vortex. a) When the arctic vortex is continually active in the north pole region, the summer temperature of the Chinese

[illegible] (illegible) No 4, Nov 81 pp 481 494]

[illegible] region is warm. b) When the arctic vortex is continually active in Eurasia, the Chinese Northeast Region summer temperature is cold, regardless of the intensity or weakness of the South Asia high. c) When there are two frequency centers of the frequency graph of the five month running mean of 500 mb arctic vortex located specifically at Eurasia and North America, the summer temperature of the Chinese Northeast Region is determined by whether the Southeast high is high or low. They are correlated with each other.

4. The summer temperature of the northeast region is connected with the winter snow cover of the Eurasia area and the snowfall of the Qinghai Tibet Plateau. They are anti correlated with each other.

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TITLE: "The Influence of Chemical Characteristics of Deep Alkaline Ground Water on the Soil"

Source: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 4, Nov 81 pp 305-316

[TEXT OF ENGLISH ABSTRACT] A study of the effect of deep alkaline ground water on soil properties was carried out in 9 districts, 11 counties of eastern and south eastern Hebei Province from 1978 to 1979. Results obtained showed that the use of deep alkaline ground water in irrigation resulted in incrustation of soil and the decrease of crop yields. It was found that such ground water contained much soda, and its chemical characteristics, such as soluble sodium percentage (SSP), residual sodium carbonate (RSC) and sodium adsorption ratio (SAR), were all much higher than the critical levels accepted internationally.

Laboratory experiments showed that after irrigation with deep alkaline ground water for 3, 4 and 5 years, soil exchangeable sodium percentage (ESP) increased from 1.3 percent to 8.7 percent, 17.3 percent and 28.7 percent respectively, with an

[Continuation of TURANG XUEBAO No 4, Nov 81 pp 305-316]

annual average increase of 5.8 percent, while soil pH increased from 7.5 to 8.6, 8.9 and 9.1 respectively, with an annual average increase of 0.48. As a result, soil physical properties deteriorated, and soil permeability coefficient significantly decreased from 5.49 mm/hour after irrigation with alkaline ground water for 3 years to 0.19 mm/hour for 5 years.

Alkaline ground water mixed with saline water in a proper proportion has a good effect on prevention from deterioration of chemical and physical properties of soil. It is considered that the application of alkaline ground water mixed with saline ground water for irrigation may be an economical and practical method for improvement of water quality, and it is of great practical significance for the improvement of saline alkali soil.

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Title: "Comprehensive Regionalization for the Harness and Control of Drought, Flooding, Salinization and Alkalization of Northwestern Plain in Shandong Province"

Source: Beijing DIZHI KEXUE [ACTA PEDOLOGICA SINICA] in Chinese No 4, Nov 81 pp 317 329

[Text] ABSTRACT The northwestern plain of Shandong is a main part of the plain of the Huang Huai Hai rivers and is also an important area of grain and cotton production. However, because of the influence of drought, flooding, soil salinization and alkalization, crop yield in the area is still low and unstable.

These calamities with closely internal interrelations should be considered

[Continuation of DIZHI KEXUE No 4, Nov 81 pp 317 329]

integratedly in order to harness and control them in a reasonable way. The main measures for harness and control of the calamities should be conducive to (a) the improvement of the water and salt regimes in the area based on drainage, (b) the sensible exploitation and regulation of water resources based on well irrigation, (c) reasonable land use integrated with maintenance and promotion of soil fertility and enhancement of resistance to disasters, and (d) popularization of forestation and improvement of the ecological environment.

On the differences in natural conditions and calamities in different regions, the measures for the harness and control of the disaster should be adopted in accordance with the local conditions. Therefore, a reasonable regionalization for the purpose mentioned above is required. The main points for the regionalization of this region should be considered as follows: (a) similarity of natural conditions which may influence the distribution of drought, flooding, soil salinization and alkalization and similarity in agricultural production, (b) possibility of reasonable use of water and soil resources and improvement of natural conditions, (c) appropriate consideration of administrative area and utilization of existing installments of irrigation and drainage.

Based on the principles mentioned above, the northwestern plain of Shandong is delimited into three regions, i.e., coastal saline region with severe drought and

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[illegible] southern spottedly salinized region with severe drought, and western spottedly salinized region with severe flooding. Under the regions, 11 subregions are delimited. General aspects of the regions and subregions are described.

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TITLE: "Influence of Transformation of Iron Oxides on Soil Structure"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 4, Nov 81 pp 336-115

TEXT OF ENGLISH ABSTRACT: The transformation of iron oxides in soil in the course of submergence and drainage and its influence on soil structure are discussed based on incubation experiments. The yellow brown earth, red earth and latosolic were added with various amounts of dried milk vetch powder, and incubated under the submerged condition with and without percolation. After eight months, the incubated samples were dehydrated at various intensities and samples without incubation were used as controls.

The complex iron and amorphous iron oxide contents of incubated samples were obviously influenced by the addition of organic matter, submergence and dehydration, but the influence of dehydrated intensity on the complex iron content was insignificant.

the amounts of silt loss described by replacement of P were decreased in the order of latosolic - red earth - yellow brown earth. Between the amounts of silt loss and exposition from inside content (E_{si}, P_{si}) there is a positive correlation with high significance ($r = 0.98$, $n = 5$). It appears that the essence of activation of iron oxides includes the reaction of the hydroxy group (-OH) on the surface of iron oxides converted into the aqua group (-OH_2).

Shrinkage rate of soil clod calculated by bulk density after air drying and oven drying ranged from 0 percent to 31 percent (by volume) and depended mainly on the amorphous iron content.

For incubated samples of yellow brown earth and red earth, the shrinkage rates of soil clod calculated well with the apparent destruction rates ($r = 0.80$, $n = 20$). It indicates that shrinkage caused by excess amorphous iron oxide content is not favorable to the formation of waterstable aggregate. This assumption seems to be supported by the phenomenon that there is a significant positive correlation between the degree of activity of iron oxides (represented by R) and the apparent destruction rate of microaggregate ($r = 0.99$ **, represented by W), then $W = 1.5 R^{0.5}$, $R = 0.08$, $n = 10$).

Based on the facts mentioned above, it is considered that it is necessary to control the conditions of activation of iron oxides (e.g., preventing the soil from

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long term submergence) and to strengthen the conditions of aging of iron oxides (e.g., drainage) for paddy soils with a high dispersity in order to facilitate the formation of good structure of the paddy soil.

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TITLE: "The Effect of Chemical Composition and Decomposition Conditions of Plant Materials on the Newly Formed Humus"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 4, Nov 81 pp 360-367

TEXT OF ENGLISH ABSTRACT: Three kinds of plant materials, milk vetch, azolla and rice straw, were mixed with a soil of negligible organic matter content and allowed to decompose in a field under upland and waterlogged conditions respectively. Samples of each plant material were taken at invervals over a period of one year and were partitioned into light and heavy fractions. Observations made on the soil fractions obtained by this procedure included the determination of C, N content, sugar content and fractional humus composition. Results obtained are as follows: 1. Although the difference in percentage of C remaining in plant materials with different chemical composition decomposing under the same environments or in the same plant materials decomposing under different environments was partly due to the difference in the amount of undecomposed and/or partially decomposed plant

[Continuation of TURANG XUEBAO No 4, Nov 81 pp 360-367]

material, it was found that plant materials differed from each other in the amount of humus they formed after one year of decomposition according to their chemical composition and the environmental conditions under which they decomposed. 2. The composition of the newly formed humus also varied with both the kind of plant material it derived from and the environmental conditions under which it decomposed. The sugar content of humus followed the order of rice straw > milk vetch > azolla, which also held for the original plant materials. The C/N ratio of the newly formed humus was much lower than that of the native soil humus, with that derived from rice straw the largest at 7.0, and that derived from milk vetch the smallest at 5.5. The HA/FA of humus derived from rice straw was the highest, and that from azolla was the lowest, while the optical density (at 465 μm) of HA followed the reverse order. No regular difference in fractional humus composition between humus formed under waterlogged conditions and that under upland conditions was found.

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